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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/194,567	04/07/99	LEIJON	M 705/71503280

EXAMINER	
ENAD,E	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

1- File Copy

Office Action Summary	Application No. 09/194,567	Applicant(s) Leijon et al.
	Examiner Elvin Enad	Art Unit 2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Jun 25, 2001 .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-19 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-19 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1,2 and 6-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shildneck (USP 3,014,139) in view of Elton et al. (USP 4,853,565).

Shildneck discloses the claimed invention except for having his stator winding comprised of an insulation system with an inner and outer semiconducting layer disposed between the insulation. Shildneck discloses an improved continuous winding for an electromagnetic device such as a large turbine-driven generator, the winding employing an improved form of flexible insulated conductor for the laminated armature core of the dynamoelectric machine.

Elton et al. ('565) teach that it is known use of a semi-conducting layer material with an insulated conductor. Elton et al. ('565) provide three distinct embodiments utilizing a semiconducting layer, namely, in windings of a dynamoelectric machine, electrical cables and electrical housing surrounding a digital electronic equipment. As seen in figures, such as figure 7, Elton et al. teach having his electrical conductor comprised of a solid insulation layer **106** between two semi-conducting pyrolyzed glass fibers **104**, **110**, the internal grading layer **104** surrounding the conductors of cable **100**. In another form of embodiment, Elton et al. teach an electrical

cable provided with an exterior layer of internal grading layer of semi-conducting pyrolyzed glass fiber layer in contact with an exterior cable insulator with a predetermined reference potential.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the cable as taught by Elton et al. as winding conductors to the stator as disclosed by Shildneck since such a modification according to Elton et al. would provide a cable that prohibit development of corona discharge and equalizes the electrical charge generated between two layers.

Regarding claim 2, note figure 5 of Elton et al. ('565) whereby Elton et al. teach using insulated blocks **54**, ties **56** and axial brackets **58a, 58b**, **58c** to secure and provide support for the windings.

3. Claims 3-5 and 10-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shildneck (USP 3,014,139) in view of Elton et al. (USP 4,853,565) and further in view of Cooper et al. (USP 4,618,795).

Shildneck in view of Elton et al. disclose the claimed invention except for a teaching of various forms and positioning of the securing means and resilient means in the stator end winding layers.

Cooper et al. teach a method of consolidating the generator end turns while providing for thermal compensation, cushion, and reduced friction between the end turn coils. Cooper et al. teach providing a decoupled brace located radially outside the end turns having a bottom piece

secured to a bracket secured to the core and a top piece adjacent the coil, an intermediate decoupler provided between the adjacent coils including an elastomeric material for cushioning as well as for allowing free axial movement between the top and bottom pieces of the brace. For instance, Cooper et al. as seen in figures 1,2, teach using strain blocks **24** between the upper and lower coils, the ends of the strain blocks keyed in to the support ring **26**, and banding elements **32**, **46**, **48**, **50**, **52** made of epoxy resin impregnated fabric for securing the differing regions of the end windings.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided means for securing the winding layers as well as cushion between the layers of the coils as taught by Cooper et al. to the electrical machine of Shildneck and Elton et al. ('565) since such a modification according to column 2, lines 1-34 of Cooper et al. would provide support, reduced stress and wear between the stator coil end turns.

Response to Arguments

4. Applicant's arguments filed on June 25, 2001, have been fully considered but they are not persuasive. Applicant argues that the combination of the cited prior arts, such as substitution of the "cable winding" of Elton for use in the dynamo electric machine of Shildneck would not have been obvious since Elton does not suggest a desirability or motivation to combine the cable to a winding in an electric machine.

Elton et al. provided three distinct embodiments utilizing a semiconducting layer, namely, in windings of a dynamo electric machine, electrical cables and electrical housing surrounding a

digital electronic equipment. In all applications, Elton et al. teach that when the semiconducting layer is in electrical contact with an electrical ground, the layer prohibits the development of a corona discharge and bleeds off any electric charge developed on the exterior surface of an insulated conductor. It is important to note that the thrust of the invention of Elton et al. ('565) is the use of a semi-conducting layer material with an insulated conductor. In the art of motors, and as recognized by Elton et al., the problem of partial discharge in end-turn windings and corona discharge in dynamo electric machines is commonly known and ever present. Elton et al. describe this problem of corona discharge developing whenever an electrical potential exists between the conductor and the region adjacent the exterior surface of the insulator. The stationary armature core are generally made of laminations which define circumferentially spaced radial slots opening into the bore. Disposed in the slots are heavily insulated electrical windings causing a high electrical potential to exists between the windings or armature bars and the members of the stator defining the slots which are at an electrical ground. Accordingly, when the semiconducting layer is in electrical contact with the electrical ground, the layer prohibits the development of corona discharge and bleeds off any electric charge developed on the exterior surface of an insulated conductor.

Since other variations of dynamo electric machines exist which utilize rounded cables for its windings in the stator or rotor core, why would one skilled in the art not apply the semiconducting layers and modify the conventional cable to solve an existing and known

problem? Or why would one skilled in the art not utilize a cable similar to the one disclosed by Elton et al.?

Regarding applicants argument that the combination of Shildneck, Elton and Cooper is not obvious since there is no motivation to put the different pieces of art together, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Examiner disagrees with applicant's argument that the cable of Elton et al. ('565) is stiff due to the presence of the semiconducting layer made of pyrolized glass layer. The rigidity of a conductor cable primarily depends on the type of insulation used. Shildneck for instance, in column 2, lines 28-30 teaches that the rigidity of the conductor bars depend on the type of insulation used. Shildneck uses silicone-rubber insulation for his flexible cable. Moreover, as is known in power cables, cable flexibility primary depends upon the use of ethylene-propylene (EPM) and ethylene-propylene-diene (EPDM) rubbers as insulation rather than of the semi-conducting layer. In addition, Elton et al. ('565) in column 8, lines 3-9, teach that the semi-conducting pyrolized glass layer can be chopped, mixed with resin and molded or blown on any complex shaped substrate so that the layer can be placed in intimate contact with substantially all

of the exterior surface of the insulator or housing. As such, the semi-conducting layer can be shaped or molded according to design, in this instance, with a cable without causing cable rigidity.

Applicant also argues that the device of Shildneck is not designed for high voltage application. According to applicant, Shildneck describes a conventional low-voltage, high current machine and does not even consider the problems existing in high voltage machines. Examiner respectfully disagrees with this observation. Shildneck in columns 1 and 2 readily discussed the disadvantages and limitations of large generators utilizing rectangular conductors or "bars" versus the benefits of using a flexible cable-type of winding. It is common knowledge that motors/generators utilizing rectangular conductors or "bars" are primarily designed for high voltage applications. Since Shildneck provides this discussion, he clearly suggests he intends to use his application to the optimum operating voltage range.

With regard to the argument that the combination of Shildneck and Elton et al. is not technically feasible and will not succeed, examiner contends that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). All of the disclosures in a reference must be evaluated for what they fairly teach one of ordinary skill in the art.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elvin Enad whose telephone number is (703) 308-7619. The examiner can normally be reached on Monday-Friday from 8:00AM to 4:00PM.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez, can be reached on (703) 308-1371. The fax phone number for this Tech Center is (703) 305-3431(32).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Elvin Enad
Primary Examiner
Art Unit 2834
07.26.2001